

REMARKS

The Office Action dated October 3, 2006 has been received and carefully reviewed. It is submitted that by this response, all bases of rejection and objection are traversed. Upon entry of this response, claims 1-12 remain in the application. Reconsideration is respectfully requested. Claim 1 has been amended to better define the invention, and to particularly point out and distinctly claim the subject matter which the applicants regard as the invention.

Claims 1-4 and 10 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Bloomfield et al. (U.S. Pat. No. 3,649,360). Claim 1 has been amended to specifically claim the control necessary for the use of hydrogen generation on an as needed basis. Bloomfield et al. provides for a start and let run until empty system. There is no on/off capability and would therefore create problems for use with today's electronics that require frequent on-off capabilities. The membrane is for total impermeability for storage considerations (col. 4, lines 43-44). System is started up by puncturing the membranes, which can't be un-punctured to stop the system. The system is a passive, start and run without moving parts, which includes no mechanism to shut it off except to let the water run out, but it will still operate at a reduced rate as water is produced by the fuel cell and fed back to the fuel to generate hydrogen. The present invention provides for an active means of shutting down the generation of hydrogen. The means can be manual or automatic, and determined by an outside signal, such as the level of a battery charge, to prevent wasteful generation of hydrogen. It is therefore submitted that claim 1 is not taught, anticipated, or rendered obvious by the reference. Applicants assert that claim 1 is now allowable. Claims 2-3 and 10 depend, either directly or indirectly, from claim 1 and through this dependency are not anticipated, taught, or rendered obvious and are also allowable.

Claims 5, 11 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bloomfield et al. (U.S. Pat. No. 3,649,360) in view of Hockaday et al. (U.S. Pat. No. 6,554,400 B2). As stated above, Bloomfield et al. provides a start and let run until

empty system. Hockaday et al. provides for continuous control of H₂ at a constant pressure, but not for on-off control except as it pertains to maintaining a constant H₂ pressure. The system of Hockaday et al. provides control through the hydrogen pressure. In one design H₂ is produced until sufficient pressure is obtained to separate the catalyst from the fuel wetted surface (col 12, lns 40-67), but will resume as the H₂ is depleted and the pressure is reduced to allow the catalyst to contact the wetted surface. In other designs, the hydrogen causes back pressure to limit the rate of wicking of the fuel supply to limit the hydrolysis reaction (col 14, lns 21-33). However, Hockaday's system continues to feed hydrogen to a fuel cell, and therefore continues to consume hydrogen, even when the fuel cell is not operating as hydrogen will diffuse through the cell, and Hockaday et al. will continue to produce H₂ in an intermittent manner. There is no shut-off without disconnecting the hydrogen generator and sealing it to allow the hydrogen pressure to reach a level to terminate the reaction. The present invention uses a direct shut off of liquid to the solid fuel when receiving a non-use signal thereby preventing continued H₂ production, but also preventing H₂ production that occurs with the normal loss of H₂ from the system, which does not occur with Hockaday as provided in claim 1. In addition, the bladder provided in Hockaday et al. is for control of contacting the catalyst with a wetted surface for hydrogen generation. The bladder of the present invention is for maintaining sufficient pressure in the liquid compartment to keep the liquid pressurized, and to allow for the liquid compartment to be positioned without respect to gravity. The present invention does not use a bladder for maintaining hydrogen pressure as in Hockaday et al. Neither Bloomfield et al. or Hockaday et al. supply this missing element. Applicants assert that claim 1 is not anticipated, taught or rendered obvious by the references, and that claims 5, 11 and 12 are dependent from claim 1 and through this dependency are not anticipated, taught or rendered obvious by the references. Applicants assert that claims 5, 11 and 12 are now allowable.

Claims 6-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bloomfield et al. (U.S. Pat. No. 3,649,360) in view of Gelsey (U.S. Pat. No. 7,108,933 B2). As stated above, Bloomfield et al. provides a start and let run until empty system. Gelsey teaches the use of valves to regulate the flow of water to the metal hydride fuel. Claim 1

has been further amended to include an adsorbent for the adsorption of CO₂. CO₂ is dissolved in water and can be released upon reaction of the water with the metal hydride. The CO₂ can adversely affect the fuel cell, and shorten the life of the fuel cell, if allowed to contact the fuel cell, and that removal of is not taught or suggested by Gelsey, Bloomfield et al. or a combination of the references. Applicants assert that claim 1 is not anticipated, taught or rendered obvious by the references, and that claims 6-9 are dependent from claim 1 and through this dependency are not anticipated, taught or rendered obvious by the references. Applicants assert that claims 6-9 are now allowable.

In summary, claims 1-12 remain in the application. Claim 1 has been amended. Remarks have been made pointing out the differences between the present invention and the prior art references traversing all of the Examiner's rejections and objections. Accordingly in view of the remarks, applicants assert that claims 1-12 meet all statutory requirements and respectfully request allowance of all pending claims. If the examiner believes it would expedite prosecution of the above identified application he is cordially invited to contact applicants' attorney at the below listed telephone number.

Respectfully submitted,

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